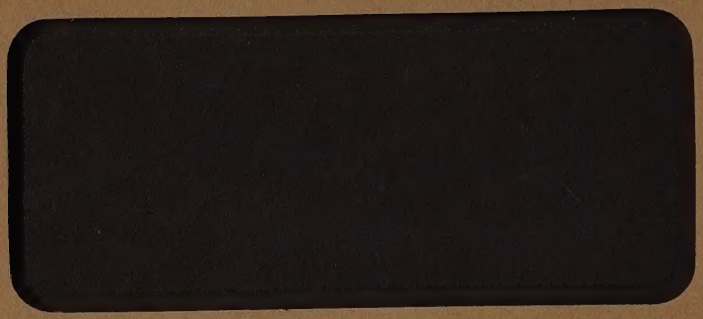
M17529X

MANUAL OF OPERATION
MODEL 2010
PROGRAMMABLE DIGITAL PRINTER

LAB COPY
LEASAMETRIC

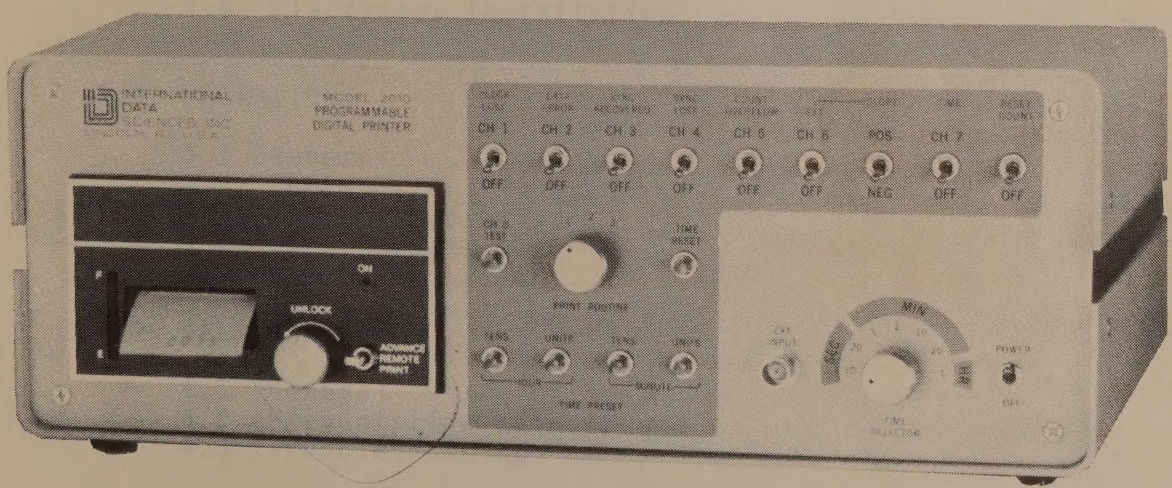
INTERNATIONAL DATA SCIENCES, INC.



INTERNATIONAL DATA SCIENCES, INC.

ADVANCED TECHNIQUES IN DATA COMMUNICATIONS

MANUAL OF OPERATION
MODEL 2010
PROGRAMMABLE DIGITAL PRINTER



© Copyright International Data Sciences, Inc. 1980

Printed in U.S.A. Pub. No. 03380

7 WELLINGTON ROAD, LINCOLN, R. I. 02865, TEL. 401-333-6200 TWX(710) 384-1911

TABLE OF CONTENTS

1.0 INTRODUCTION

- 1.1 General
- 1.2 Technical Specifications
- 1.3 Options

2.0 INSTALLATION

- 2.1 General
- 2.2 Site Preparation
- 2.3 Unpacking and Inspection
- 2.4 Tools/Equipment/Materials Required
- 2.5 Mechanical Installation
- 2.6 Electrical Installation

3.0 OPERATION

- 3.1 General
- 3.2 Controls and Indicators
- 3.3 Printer Operation
- 3.4 Paper Loading

4.0 MAINTENANCE

- 4.1 General
- 4.2 Preventative Maintenance
- 4.3 Troubleshooting

APPENDIX - SPARE PARTS LIST

CALIBRATION AND REPAIR SERVICE

TROUBLE REPORT

WARRANTY

LIST OF FIGURES

1-1 IDS Model 2010 Programmable Digital Printer

2-1 Rear Panel Connectors

3-1 Front Panel Controls and Indicators

3-2 Print Format Examples

3-3 Paper Loading

LIST OF TABLES

1-1 Options

2-1 Data Test Set Interface Description

1.0 INTRODUCTION

1.1 General

The Model 2010 Programmable Digital Printer, shown in Figure 1-1, is designed to operate with any IDS Range Rider Modem Test Set to provide a permanent record of test results. It can be used to obtain an unattended record of failures of critical signals in the various data interfaces under test.

Features of the Model 2010 (henceforth referred to as the printer) include a presettable real time clock, six selectable trigger channels, and seven selectable print periods. Printouts consist of the time the event occurred, a channel identifier, and three digits of bit errors, block errors, or character errors.

The printer is simple to operate. The operator starts the test by selecting the appropriate channel he wishes to record. Printouts are initiated whenever any of the selected events occur. Trigger channel input signals are stored to allow printouts of two events that occur simultaneously.

The following sections of this manual provide information on the installation and operation of this printer.

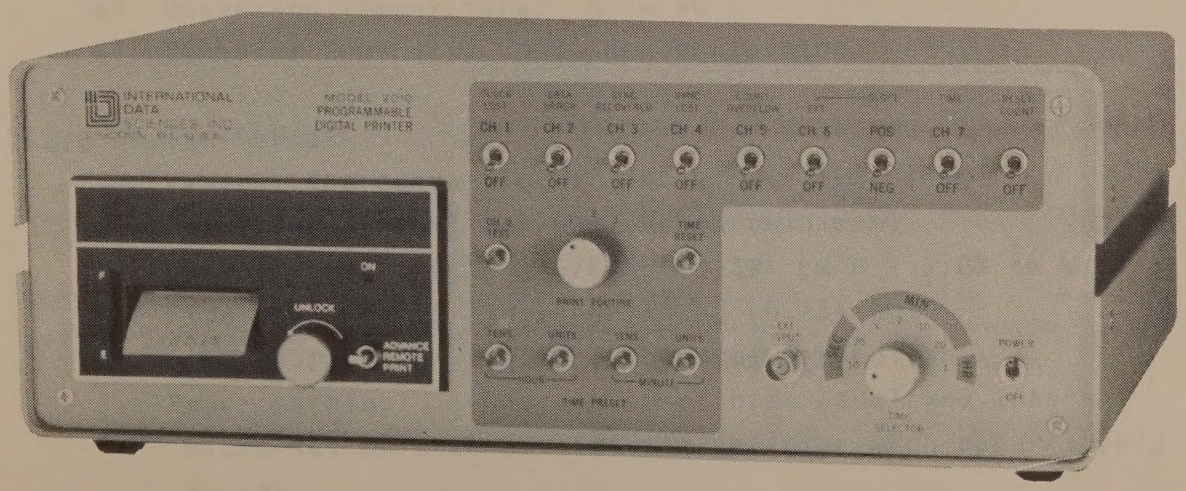


Figure 1-1. IDS Model 2010 Programmable Digital Printer

1.2 Technical Specifications

1.2.1 Dimensions

a) Desktop - Height: 5 1/4 inches (13.36 cm)
Width: 14 3/4 inches (37.47 cm)
Depth: 12 inches (30.48 cm)

b) Rack Mount (option) - Height: 5 1/4 inches (13.36 cm)
Width: 19 inches (48.30 cm)
Depth: 12 inches (30.48 cm)

1.2.2 Weight

The printer weighs approximately 16 pounds, 4 ounces (7.4 Kg), uncrated.

1.2.3 Power Requirements

The printer requires 115 VAC, 60 Hz ±10% power input. Internal protection is provided by a 1 Amp, SB fuse. For 230 VAC, 50 Hz operation, an optional factory modification is required. Power consumption is approximately 110 watts, maximum.

1.2.4 Environmental Conditions

a) Operating Temperature: 0^{o} - 50^{o}C.
b) Relative Humidity: 90%, non-condensing.

1.2.5 Print Format

a) Paper: Thermographic, 1 3/4" wide x 150' long.
b) Print Speed: 3 lines per second (minimum).
c) Characters: 5/32"H x 5/64"W (0.394 cm H x 2.03 cm W).
d) Line Spacing: 5 lines per inch (0.254 cm).
e) Column Spacing: 13/64" (0.508 cm) per column.
f) Paper Warning: F-E scale on printer panel and internal micro-switch that de-activates printer when paper supply is low.

1.3 Options

Table 1-1 lists and describes options available for the printer.

TABLE 1-1. OPTIONS

Option	Description
230 VAC Operation	Allows printer to operate from a 230 VAC, 50 Hz power source.
Rack Mount	Allows unit to be mounted in a standard 19-inch cabinet.

2.0 INSTALLATION

2.1 General

This section provides information required to perform both the mechanical and electrical installation requirements. Service personnel should become familiar with all installation procedures before attempting to install the printer. Upon completion of all installation requirements, refer to Section 3.0 for power-up and operation procedures.

2.2 Site Preparation

The installation area should be clean, well lighted, and free from extremes of temperature, humidity, appreciable shock, and vibration. The printer should be installed within six (6) feet of a grounded AC outlet capable of furnishing primary power as specified in paragraph 1.2.3. Allow three (3) feet of front clearance for installation and maintenance and a minimum of three (3) inches at the rear for cable clearance and air flow.

2.3 Unpacking and Inspection

Before unpacking the printer, inspect the packing container for unusual damage. Then unpack the unit and inspect it for external damage such as scratches or dents and broken controls, indicators, and connectors. If physical damage is present, retain the packing material and contact the carrier immediately. Each unit has been thoroughly inspected prior to shipment.

2.4 Tools/Equipment/Materials Required

No special tools or equipment are required to install the printer. Any standard field service tool kit can be used.

2.5 Mechanical Installation

The printer is a free-standing unit equipped with plastic feet designed for placement on a shelf or table top. The unit has no provisions for securing it to the mounting surface.

2.6 Electrical Installation

2.6.1 AC Power Cord

AC power is supplied to the printer through a removable 6-foot line cord with a grounded 3-wire plug. The line cord mates with a receptacle at the rear of the unit (see Figure 2-1). Power requirements are specified in paragraph 1.3.3.

2.6.2 Modem Test Set Interface

A male, 25-pin connector located on the rear panel provides the interface to allow for the interconnection of an IDS Range Rider Modem Test Set. The interface pin assignments are listed and described in Table 2-1.

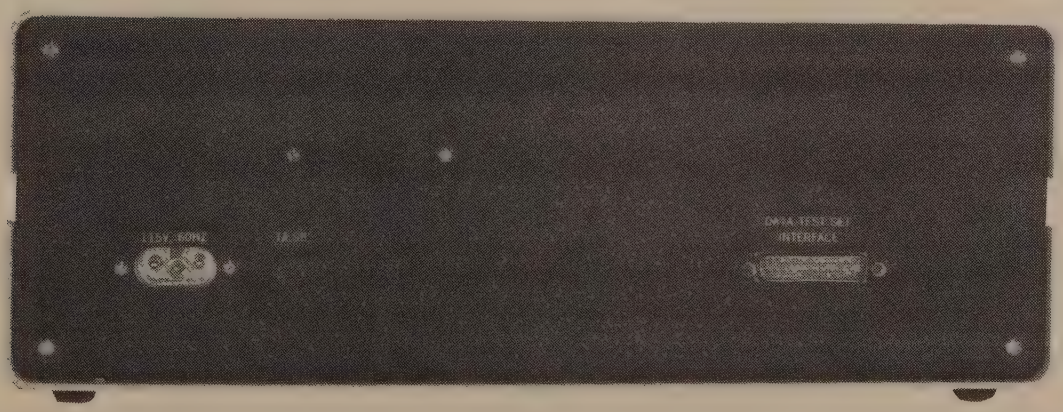


Figure 2-1. Rear Panel Connectors

TABLE 2-1. DATA TEST SET INTERFACE DESCRIPTION

#	Signal Name	Signal Flow	Description
1	Not Used		
2	Data Error	To Printer	A negative going pulse indicates a bit or block has been received by the modem test set.
3	Clock Lost	To Printer	A normally high level which goes low whenever receive clock is absent.
4	BCD Bit 800	To Printer	Binary Coded Decimal (BCD) data is connected to these inputs. Normally the inputs are connected to a modem test set which represents the Error Counter Readout of the test set.
5	BCD Bit 400	To Printer	
6	BCD Bit 100	To Printer	
7	BCD Bit 200	To Printer	
8	BCD Bit 40	To Printer	
9	BCD Bit 80	To Printer	
10	BCD Bit 10	To Printer	
11	BCD Bit 20	To Printer	
12	BCD Bit 4	To Printer	
13	BCD Bit 8	To Printer	
14	BCD Bit 2	To Printer	
15	BCD Bit 1	To Printer	
16	Not Used		
17	Reset Count	From Printer	This negative output level is used to reset the display counter of the modem test set.
18	Not Used		
19	Sync Recovered	To Printer	A low level indicates the modem test set has recovered sync.
20	Not Used		
21	Signal Ground		
22	Not Used		
23	Not Used		
24	Sync Lost	To Printer	A positive going pulse indicates the modem test set has lost sync.
25	Not Used		

3.0 OPERATION

3.1 General

This section describes all front panel controls and indicators, and provides information on power-up and operation procedures. The operator should become familiar with this information before attempting to operate the printer.

3.2 Controls and Indicators

Front panel controls and indicators are shown in Figure 3-1 and described in the following paragraphs.

3.2.1 Time Preset

The Time Preset allows the real time clock to be set to the time of day. It consists of four pushbutton switches labeled HOUR: TENS and UNITS; and MINUTE: TENS and UNITS. The internal time clock is synchronized to the 60 Hz line frequency.

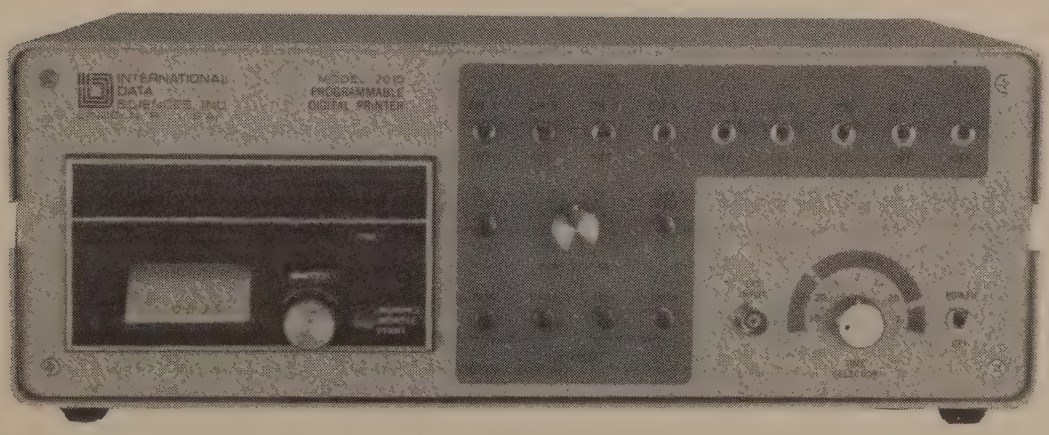


Figure 3-1. Front Panel Controls and Indicators

3.2.1 Time Preset (continued)

Each time a switch is pressed, that time location will advance one unit. The counter is designed to overflow from units (minutes) to units (hours) to tens (hours). For example, to preset the timer to 12:45, depress the MINUTE/UNITS pushbutton five times and the MINUTE/TENS pushbutton four times; then depress the HOUR/UNITS two times and the HOUR/TENS once.

3.2.2 Time Reset

This pushbutton resets the real time clock.

3.2.3 Channel Ø: Test

This pushbutton initiates one complete print cycle when depressed. The channel identifier is the number Ø.

3.2.4 Channel 1: Clock Lost

A printout occurs whenever a loss of clock timing is detected by the Modem Test Set.

3.2.5 Channel 2: Data Error

A printout occurs when a bit error has been detected or when a block or character containing one or more errors has been received.

3.2.6 Channel 3: Sync Recovered

With this switch selected, a printout occurs each time the Modem Test Set recovers bit synchronization. The error count printout will be zero since the Modem Test Set resets the error count to zero upon resynchronization.

3.2.7 Channel 4: Sync Lost

With this switch selected, a printout occurs each time the Modem Test Set detects a loss of bit synchronization. The error count printout will be meaningless since errors will be detected due to the patterns being out of synchronization rather than legitimate bit errors.

3.2.8 Channel 5: Count Overflow

A printout occurs each time the three-digit error counter internal to the Modem Test Set has been exceeded.

3.2.9 Channel 6: External

This channel can be used for any signal not available through the interface connector. The printout can be triggered by the positive or negative edge of the signal as selected by the Channel 6 positive/negative slope control switch.

3.2.10 Slope

This two-position toggle switch selects either the positive (POS) or negative (NEG) slope of the external input signal as the trigger input. This switch is disabled when Channel 6 is switched to the DCD position.

3.2.11 Channel 7: Time

This channel provides periodic printouts selectable from ten seconds to one hour in the following intervals: 10, 20 seconds; 1, 2, 10, 20 minutes; 1 hour. To save paper, the printout will occur only when an error has been received.

3.2.12 Reset Count

A toggle switch which, in the ON position, enables hand shaking between the printer and the Modem Test Set. This switch will allow the test set's error count to be reset simultaneously with the print cycle. The Modem Test Set continues to detect and

3.2.12 Reset Count (continued)
and record error accumulation while the printer is in a print cycle. The switch operates only if either the Channel 6 or Channel 7 switches are ON.

3.2.13 F/E Scale

The full (F)/empty (E) scale located on the printer mechanism provides a visual indication of the paper supply. An internal microswitch deactivates printer operation when paper supply is depleted.

3.2.14 Advance/Remote/Print

This three-position toggle switch controls operation of the printer mechanism. When held in the ADVANCE position, the printer will continuously advance the printer without printing. When held in the PRINT position, the printer will print one line for test purposes and stop the REMOTE.

3.2.15 External Input

The BNC input labeled EXT may be used to trigger CH 6 (when EXT is selected) using an external TTL signal source.

3.2.16 Time Selector

This rotary switch selects the time intervals that trigger a periodic printout. Seven print intervals, ranging from ten seconds to one hour, may be selected. A periodic printout is enabled only when CH 7 is switched to the TIME position. To conserve paper, a printout will be enabled only if a bit error has occurred since the previous printout.

3.2.17 Print Routine

This three-position rotary switch controls print formats as shown in Figure 3-2.

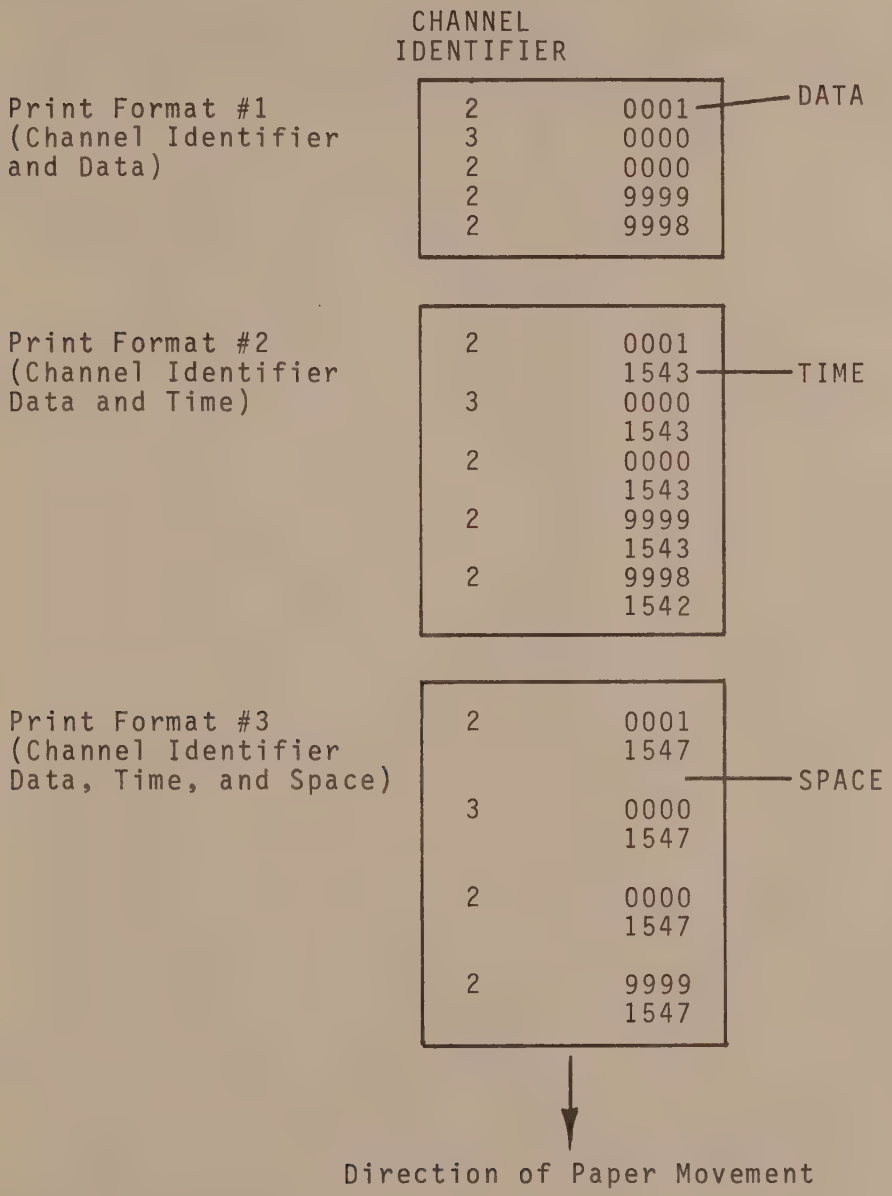


Figure 3-2. Print Format Examples

3.2.18 Power

This switch energizes the unit and automatically resets the real time clock. An LED indicates when the power is on.

3.3 Printer Operation

3.3.1 Normal Operation

To operate the printer, power-up the unit, set the desired trigger events that will initiate a print cycle, and set the real time clock to the time of day.

The information printed during each print cycle is shown in Figure 3-2. The print format depends upon the setting of the PRINT ROUTINE switch. Line one prints the channel identifier and the errored bits. Line two prints the time of the printout. Line three is suppressed.

The trigger events of Channels 1, 2, and 3 are negative-edge-triggered; Channels 4 and 5 are positive-edge-triggered signals. Channel 6 EXT can be switched to trigger on either the positive or negative slope of the BNC input signal. Channel 7 enables the periodic printout as set by the Time Selector.

3.3.2 Test Procedure

To verify proper printer operation, perform the following test procedure. If problems occur in any given step, refer to Section 4.0, Maintenance, for troubleshooting information.

1. a) Place all toggle switches in the down position.
   b) Set print routine switch to 1.
   c) Set time selector switch to 10 seconds.
2. Connect Model 2010 to AC power source.
3. Set Power switch up.
   NOTE: Printer mechanism may advance.
4. Depress Advance switch.
   NOTE: Paper advances through front panel.
5. Depress CH Ø Test Switch.
   NOTE: Printer prints one line and stops automatically.

3.3.2 Test Procedure (continued)

6. Set Print Routine switch to 2 and depress CH Ø Test switch.
   NOTE: Printer prints two lines and stops automatically.
7. Set Print Routine switch to 3 and depress CH Ø Test switch.
   NOTE: Printer prints two lines, skips the third line, and stops automatically.
8. a) Set Print Routine switch to 1.
   b) Connect Model 2010 to any IDS Model Test Set.
   NOTE: In the following discussion, an IDS Model 1310 TDM-Modem Test Set will be used to test the Model 2010 Printer. The Model 1310 is assumed to be in a self-test, loop-around mode with a pseudo-random pattern selected. While a Model 1310 is utilized in this example of a test procedure, any IDS Modem Test Set may be used.
9. Using Force Error switch on the Model 1310, check all numbers Ø-9 on units, tens, and hundreds by inserting an error and then depressing CH Ø Test switch on the Model 2010 at each desired number.
   NOTE: In all cases, number on printer tape agrees with error count.
10. Depress and release Break Sync switch on Model 1310.
    NOTE: Printer did not initiate a printout.
11. a) Set CH 1 switch on Model 2010 up.
    b) Depress and release Break Sync switch on Model 1310.
    NOTE: a) Printer initiates a print routine.
    b) A "1" has been printed in the left hand column of Model 2010 tape.
12. a) Set CH 1 switch off.
    b) Set CH 2 switch up.
    c) Set Force Errors switch on Model 1310 up.

3.3.2 Test Procedure (continued)

NOTE: a) A print routine is initiated each time an error occurs.
b) A "2" has been printed in the left hand column of Model 2010 tape.

13. a) Set CH 2 switch off.
b) Set CH 3 switch up.
c) Depress and release Break Sync switch on Model 1310.

NOTE: a) A print routine is initiated when the Model 1310 recovers sync.
b) A "3" has been printed in the left hand column of Model 2010 tape.

14. a) Set CH 3 switch off.
b) Set CH 4 switch up.
c) Depress and release Break Sync switch on Model 1310.

NOTE: a) A print routine is initiated when Model 1310 detects sync lost.
b) A "4" has been printed in the left hand column of Model 2010 tape.

15. a) Set CH 4 switch off.
b) Set CH 5 switch up.
c) Using Force Error switch on Model 1310, allow error count to reach overflow.

NOTE: a) A print routine is initiated when error count overflows.
b) A "5" has been printed in the left hand column of Model 2010 tape.

16. a) Set CH 5 switch off.
b) Set CH 6 switch up.
c) Connect negative going signal (TTL LEVEL) to Ext BNC.

NOTE: a) A print routine is initiated when input at BNC goes negative.

3.3.2 Test Procedure (continued)

b) A "6" has been printed in the left hand column of Model 2010 tape.

17. Set Slope switch to POS.

NOTE: A print routine is initiated when the BNC input goes positive.

18. a) Set Reset Count switch up.
b) Insert a random number of errors in Model 1310.
c) Set Slope switch to NEG then back to POS.

NOTE: a) Printer initiates a print routine.
b) Error count in Model 1310 has been reset to ØØØ.

19. a) Set CH 6 switch off.
b) Set Slope switch to NEG then back to POS.

NOTE: Printer does not initiate a print routine.

20. a) Set CH 7 switch up.
b) Force errors in Model 1310 at a rate greater than 1 every 10 seconds.

NOTE: Each 10 seconds a print routine is initiated and a "7" has been printed in the left hand column of Model 2010 tape.

Each time a print routine is initiated, the Model 1310 error count is reset to ØØØ.

21. a) Set Print Routine switch to 2.
b) Allow time print on paper tape to advance past at least one minute.
c) Depress and release Reset Clock switch.

NOTE: The next printout will be at time ØØØØ.

22. Set time selector to each position and check for correct time interval printout.

NOTE: Check for correct hours and minutes printout.

3.4 Paper Loading

The following is a step-by-step procedure for loading a new roll of paper into the printer:

a) Shut off all power to the printer.

b) Slide out the printer mechanism by first loosening the front panel thumbscrew counterclockwise until it stops. Then pull the thumbscrew firmly straight out, and the printer assembly will slide out. Some force may be needed to release the internal P.C. connection.

c) Remove any paper from the previous roll and pull the remaining paper backward out from under the printhead by pressing down on the printhead release lever (see Figure 3-3).

d) Grasp both ends of the paper roll axle with fingertips and pull straight up out of the printer assembly. The axle will slide past the circular axle retaining spring with little resistance.

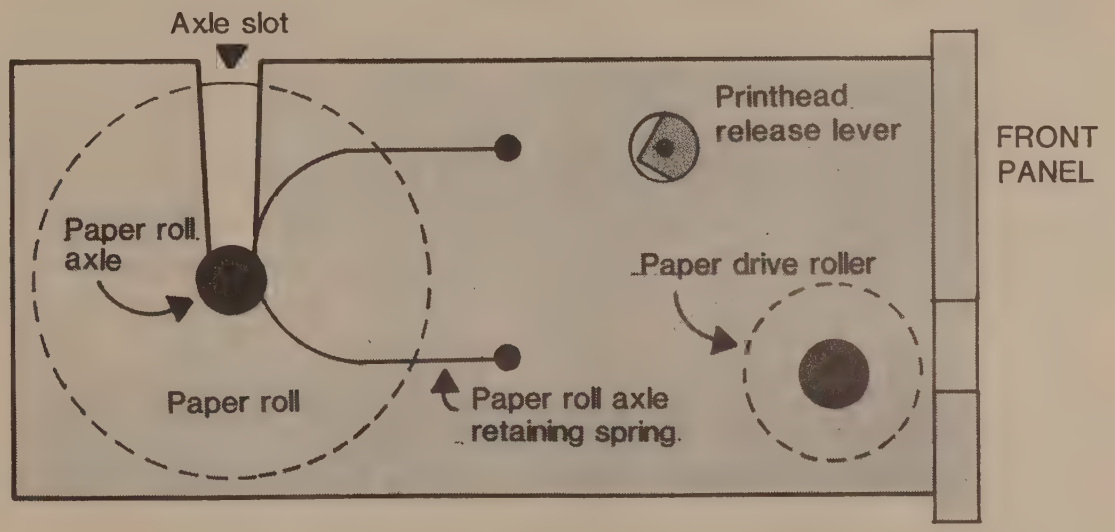
e) Slide the paper roll axle out of the used paper roll and insert into new roll. Do not discard axle!

f) Slide the new roll and the axle past the retaining spring. Be sure the paper is threaded from the rear and passes over the roll; only the outside paper surface is treated for printing.

g) Cut the paper straight across and insert it under the printhead ribbon cable (while pressing down on the printhead release lever) until paper appears at the front slot.

h) Slide the printer assembly back into the housing, pressing firmly to seat the internal P.C. board connection.

i) Rotate the thumbscrew clockwise to lock the printer assembly in place, and power-up the unit.



SIDE VIEW

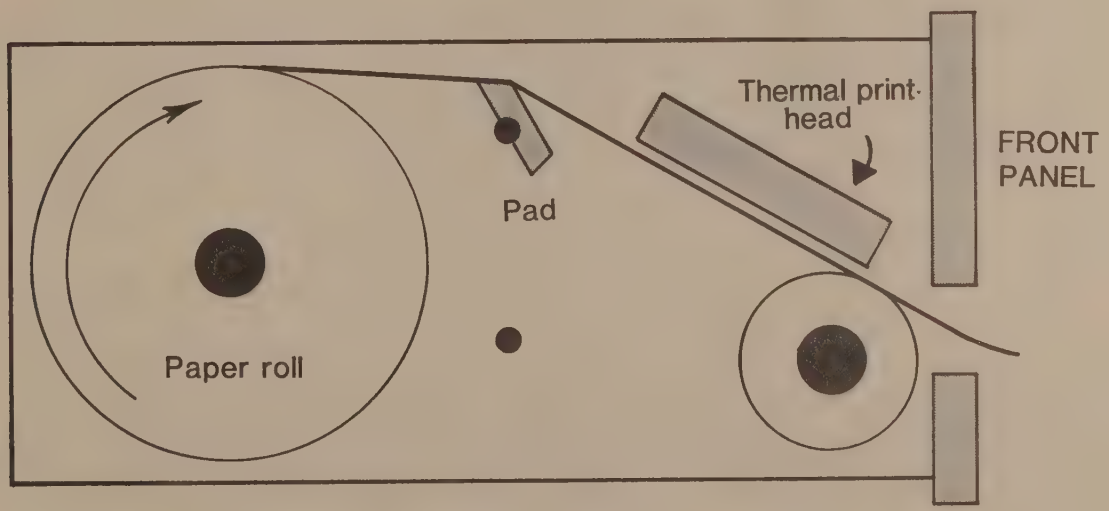


Figure 3-3. Paper Loading

4.0 MAINTENANCE

4.1 General

This section provides information required to maintain the printer at the installation site. The printer utilizes plug-in printed circuit boards to facilitate fault isolation and repair. Troubleshooting should be limited to the replacement of a defective printed circuit board or the printer mechanism. Maintenance beyond this level should only be accomplished at the factory. Unauthorized component replacement beyond that described in the following paragraphs will void the warranty.

4.2 Preventative Maintenance

The printer requires no special preventative maintenance to keep it in good working order when operating in an environment free from extremes of temperature, humidity, appreciable shock, and vibration. However, the operator can ensure that the AC line cord and interface cable are free from cuts, cracks, or any other damage. Also inspect front panel switch movements and tighten switch holding nuts.

Following completion of this preventative maintenance, perform the test procedure in Section 3.3 to verify proper printer operation.

4.3 Troubleshooting

4.3.1 Fault Isolation

To isolate faults in the printer, first perform the test procedure given in Section 3.3. A failure at any step will determine which printed circuit board is at fault. The following paragraphs describe the functions associated with each P.C. board.

A1 Board: This board contains the logic circuitry for Channels 1, 3, 6, 7, and the Channel 6 Slope switch control. It also contains the logic enabling the Range Rider Modem Test Set error counter to be reset after each printout under control of the RESET COUNT switch. The identifier channel data to printer is also located on this board.

A2 Board: This board contains the logic circuitry for Channels 2, 4, and 5 and portions of the printing mechanism control interface. In addition, the CH Ø Test, Reset Count, and Print Routine switch functions are located on this board.

A3 Board: This board contains the logic circuitry for the real time clock, the interface circuits for the printing mechanism, and the control logic for the Clock Reset pushbutton function.

4.3.2 Repair Procedure

The following describes various fault conditions and the recommended replacement of P.C. boards A1, A2, or A3; or the printer mechanism. In cases where two or more replacements are recommended, the maintenance person should make the replacement in the order given. After the apparent failure has been located and corrected, repeat the test procedure to verify that the abnormal symptom has been corrected and that no additional failures exist.

A plug-in printed circuit board card extender is supplied with each unit to facilitate fault isolation down to the component level; however, it is recommended that the factory be contacted before this is attempted.

4.3.2 Repair Procedure (continued)

CONDITION A: Power switch On. Channels 1 through 7 Off. Reset Count Off.

	FAULT	CORRECTION
1.	Total printer failure.	Low paper supply, Printing Mechanism.
2.	Paper does not "Advance".	Printing Mechanism.
3.	"CH Ø Test" command does not function.	A1, A2, Printing Mechanism.
4.	"Print Routine 1" is not correct.	A2
5.	"Print Routine 2" is not correct.	A2
6.	"Print Routine 3" is not correct.	A2
7.	"Clock Reset" does not function.	A2, A3
8.	Clock does not print out in "Print Routine 2 or 3".	A2, A3
9.	Clock printout is all zeros (After one minute of operation).	A2, A3
10.	Incorrect time printout.	A2, A3, Printing Mechanism.

CONDITION B: "RANGE RIDER" TDM Modem Test Set connected to the Model 2010. The test set must have "Power ON" and be in the "Test" mode.

NOTE: Be sure the printer cable is used to connect to the test set and not to the data cable.

	FAULT	CORRECTION
1.	Channel 1 off, the test set loses clock and a printout occurs. (Clock lost by depressing "Break Sync" pushbutton in test set).	A1
2.	Channel 1 on, the test set loses clock and no printout occurs. (Clock lost by depressing "Break Sync" pushbutton on test set).	A1

4.3.2 Repair Procedure (continued)

	FAULT	CORRECTION
3.	Channel 2 off, the test set records a forced error and a printout occurs.	A2
4.	Channel 2 on, the test set records a forced error and no printout occurs.	A2
5.	Channel 3 off, and the "Break Sync" push-button is depressed. The test set recovers sync and a printout occurs.	A1
6.	Channel 3 on, and the "Break Sync" push-button is depressed. The test set recovers sync and no printout occurs.	A2
7.	Channel 4 off, and the "Break Sync" push-button is depressed. The test set recovers sync and a printout occurs.	A2
8.	Channel 4 on, and the "Break Sync" push-button is depressed. The test set loses sync and no printout occurs.	A2
9.	Channel 5 off, and the "Break Sync" push-button is depressed. The test set "Over-range" indicator goes on and a printout occurs each time the error count goes from 999 to ØØØ.	A2
10.	Channel 5 on, and the "Break Sync" push-button is depressed. The test set "Over-range" indicator goes on and no printout occurs.	A2
11.	Any Channel 6 faults including functions of "POS/NEG SLOPE" either in the ON or OFF position.	A1
12.	Channel 7 on and no printout or printout at an incorrect interval.	A1, A3
13.	Channel 7 off and printout occurs.	A1

4.3.2 Repair Procedure (continued)

	FAULT	CORRECTION
14.	Reset Count off, Channel 6 and 7 off, and reset of the test set display occurs.	A2
15.	Reset Count up, Channel 6 or 7 on, Channel 1 thru 5 off, and reset of the test set display does not occur.	A1, A2
16.	Incorrect test set display count is printing when Channels 2, 6, or 7 are on. Reset Count may be up or off.	A3, Printing Mechanism

APPENDIX

7 WELLINGTON ROAD, LINCOLN, R. I. 02865, TEL. 401-333-6200 TWX(710) 384-1911

MODEL 2010 SPARE PARTS LIST

QTY.	PART NO.	REF. DESIG.	DESCRIPTION	VENDOR	REMARKS
1	7-332110		A1 Board	IDS	
1	7-332120		A2 Board	IDS	
1	7-211014		A3 Board	IDS	
1	6-800-4	Printer Mechanism	7-Column Printer	IDS	
1	6-454-1	S1 thru S10	Toggle Switch	IDS	
1	6-452-1109	S14	7-Position Rotary Sw.	IDS	
1	6-451-1	S12,13,S22thruS25	Pushbutton Switch	IDS	
1	6-452-1110	S15	3-Position Rotary Sw.	IDS	
1	6-432-4		6-Foot Line Cord	IDS	
1	6-290-11	F1	Fuse	IDS	
1	6-403-3	J1	Male EIA Connector	IDS	
1	7-400100-6		6 Ft. Data Cable	IDS	
1	6-801-3		Printer Paper	IDS	

7 WELLINGTON ROAD, LINCOLN, R. I. 02865, TEL. 401-333-6200 TWX(710) 384-1911

INTERNATIONAL DATA SCIENCES, INC.
ADVANCED TECHNIQUES IN DATA COMMUNICATIONS

INTERNATIONAL DATA SCIENCES, INC.

ADVANCED TECHNIQUES IN DATA COMMUNICATIONS

CALIBRATION AND REPAIR SERVICE

All units sold by International Data Sciences, Inc. are calibrated at the time of delivery. International Data Sciences, Inc. recommends a periodic calibration every six months thereafter performed by the Calibration Department at International Data Sciences, Inc. Contact IDS for the cost of each calibration. If the unit requires repairs that are not covered by the original warranty, then IDS will perform the repair at an hourly charge plus parts. Normal turn-around time for calibration is two weeks.

Equipment so calibrated will bear a gummed label on the rear panel identifying the serial number of unit calibrated; the date of calibration; the next recommended calibration date; and the in-plant calibrator identifier.

All units returned to IDS for calibration will be accepted only if transportation charges are prepaid. The purchaser is also responsible for all transportation charges incurred in returning the calibrated unit to the purchaser.

For fast service Federal or Emery Air Freight are recommended. If time is not a problem, UPS is recommended. Return address should be clearly stated and should include a person to the attention of whom unit will be shipped.

Shipping cartons with proper foam packing are available from IDS. The carton will facilitate shipping the equipment to be calibrated with a maximum of protection.

For most expeditious service, when returning the equipment for repair, please fill out the Trouble Report in your Manual of Operation.

7 WELLINGTON ROAD, LINCOLN, R. I. 02865, TEL. 401-333-6200 TWX(710) 384-1911

INTERNATIONAL DATA SCIENCES, INC.
ADVANCED TECHNIQUES IN DATA COMMUNICATIONS

MODEL 2010 TROUBLE REPORT

1) Please indicate which of the following switches were on:

CH 1 ____ CH 2 ____ CH 3 ____ CH 4 ____

CH 5 ____ CH 6 ____ CH 7 ____ RESET COUNT ____

2) Please indicate what position the following switches were in:

EXT SLOPE

POS ___

NEG ___

PRINT ROUTINE

1 _____

2 _____

3 _____

TIME SELECTOR:

10 sec. ____ 20 sec. ____

1 min. ____ 2 min. ____ 10 min. ____ 20 min. ____ 1 hour ___

3) Please give a description of how the printer was being used. Describe connector used, equipment type, and malfunction.

4) Please give name, address, and telephone number of person to contact about this unit.

7 WELLINGTON ROAD, LINCOLN, R. I. 02865, TEL. 401-333-6200 TWX(710) 384-1911

INTERNATIONAL DATA SCIENCES, INC.
ADVANCED TECHNIQUES IN DATA COMMUNICATIONS

WARRANTY

All International Data Sciences, Inc. instruments are warranted against defects in material, workmanship, and component failures for a period of ninety days and against defects in material and workmanship for a period of one year. All units returned to IDS under this warranty require prepaid transportation charges. The purchaser is also responsible for all transportation charges incurred in returning the repaired unit to the purchaser.

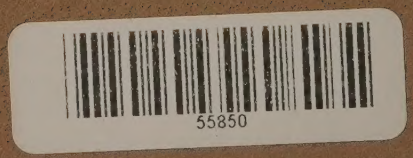
Instruments to be returned under this warranty require prior authorization by an International Data Sciences, Inc. representative or by the service manager of International Data Sciences, Inc.

International Data Sciences, Inc. reserves the right to make changes in design at any time without incurring any obligation to install same on units previously purchased.

This warranty is expressly in lieu of all other obligations or liabilities on the part of International Data Sciences, Inc., and International Data Sciences, Inc. neither assumes nor authorizes any person to assume for them any other liability in connection with the sales of International Data Sciences, Inc. instruments.

7 WELLINGTON ROAD, LINCOLN, R. I. 02865, TEL. 401-333-6200 TWX(710) 384-1911

Don Moseley
203 634-4499
Data Products - New England



7 WELLINGTON ROAD, LINCOLN, R. I. 02865, TEL. 401-333-6200 TWX(710) 384-1911